

CLAIMS

This listing of claims replaces all prior versions, and listings, of claims.

1. (Cancelled) A process for producing an industrial chemical, comprising:
 - providing an isomerization precursor;
 - isomerizing a site of unsaturation in the precursor to produce an isomerized derivative; and
 - reacting the isomerized derivative with an unsaturated compound in the presence of a metathesis catalyst to produce at least one desired industrial chemical.
2. (Presently Amended) A process for producing an industrial chemical, comprising:
 - providing an isomerization precursor;
 - isomerizing a site of unsaturation in the precursor to produce an isomerized derivative; and
 - reacting the isomerized derivative with an unsaturated compound in the presence of a metathesis catalyst to produce at least one desired industrial chemical.

~~The process according to claim 1 where the isomerization precursor is an unsaturated fatty acid or fatty acid derivative.~~
3. (Original) The process according to claim 2 where the fatty acid or fatty acid derivative is a polyunsaturated fatty acid.
4. (Presently Amended) The process according to claim 1 2 where the metathesis catalyst is a ruthenium-based catalyst.
5. (Original) The process according to claim 2 where isomerizing the fatty acid or fatty acid derivative includes contacting the fatty acid or fatty acid derivative with an enzyme.
6. (Presently Amended) The process according to claim 4 2 where isomerizing produces a conjugated diene derivative.

7. (Original) The process according to claim 6 where the conjugated diene derivative is a conjugated linoleic acid.

8. (Original) The process according to claim 7 where the conjugated linoleic acids 18:2 Δ 9,11 linoleic acid.

9. (Presently Amended) The process according to claim 4 2 where reacting the isomerized derivative produces at least one compound selected from the group consisting of butadiene, 1-octene, 9-decenoic acid, derivatives thereof, and combinations thereof.

10. (Original) The process according to claim 2 where reacting the fatty acid or fatty acid derivative with an unsaturated compound produces at least one compound selected from the group consisting of butadiene, 1-octene, 9-decenoic acid, derivatives thereof, and combinations thereof.

11. (Original) The process according to claim 10 where reacting the fatty acid or fatty acid derivative with an unsaturated compound produces 1-octene.

12. (Original) A process for producing 1-octene, comprising:
providing linoleic acid or a derivative thereof;
enzymatically isomerizing a site of unsaturation in the linoleic acid or derivative thereof to produce an isomerized linoleic acid or isomerized lower ester of linoleic acid; and

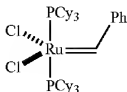
reacting the isomerized linoleic acid or isomerized lower ester of linoleic acid with a metathesis catalyst in the presence of ethylene, thereby producing 1-octene.

13. (Original) The process according to claim 12 where the isomerized linoleic acid is Δ 9,11-octadecadienoic acid.

14. (Original) The process according to claim 13 where Δ 9,11-octadecadienoic acid is esterified to provide a lower alkyl ester prior to reacting with ethylene in the presence of a metathesis catalyst.

15. (Original) The process according to claim 12 where the metathesis catalyst is a ruthenium-based catalyst.

16. (Original) The process according to claim 15 where the metathesis catalyst is



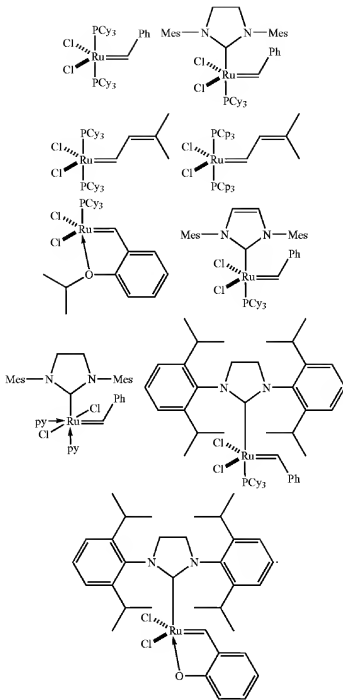
17. (Original) The process according to claim 12 where the linoleic acid is derived from soybean oil.

18. (Original) A process for producing 1-octene, comprising:
 providing linoleic acid from soybean oil;
 contacting the linoleic acid with a linoleate isomerase to produce $\Delta 9,11$ -octadecadienoic acid;
 esterifying the $\Delta 9,11$ -octadecadienoic acid to produce a lower alkyl ester;
 and
 contacting the ester with a metathesis catalyst in the presence of ethylene, thereby producing 1-octene.

19. (Original) The process according to claim 18 where contacting the ester with a metathesis catalyst in the presence of ethylene produces a 9-decenoate ester.

20. (Original) The process according to claim 18 where the catalyst is a ruthenium based catalyst.

21. (Original) The process according to claim 20 where the catalyst is selected from the group consisting of



22. (Original) A process for producing 1-octene, comprising:
providing a fatty acid diene or an ester thereof;

converting the fatty acid diene or the ester thereof to vaccenic acid or an ester thereof;

contacting the vaccenic acid or an ester thereof with a metathesis catalyst in the presence of ethylene, thereby producing 1-octene.

23. (Cancelled) A method for making 1-octene, comprising:
providing $\Delta 9,11$ -octadecadienoic acid or a derivative thereof; and
contacting the $\Delta 9,11$ -octadecadienoic acid the derivative thereof with a metathesis catalyst in the presence of ethylene, thereby producing 1-octene.

24. (Cancelled) The method according to claim 23 where $\Delta 9,11$ -octadecadienoic acid or a derivative thereof is provided as an ester or a salt of $\Delta 9,11$ -octadecadienoic acid.

25. (Cancelled) The method according to claim 24 where providing comprises providing a lower alkyl ester of octadecadienoic acid.

26. (Cancelled) The method according to claim 25 where the ester is a methyl ester.

27. (Cancelled) The method according to claim 23 where the method produces 9-decenoic acid.

28. (Cancelled) The method according to claim 23 where the metathesis catalyst is a ruthenium-based catalyst.

29. (Cancelled) The method according to claim 23 where the metathesis catalyst is selected from the group consisting of

